

body.

According to one aspect of the invention, there is provided an elasticity measuring device for being inserted into a canal part of a human body and for measuring elasticity of the inner side of the canal part of the human
5 body, the device comprising:

a probe base for being inserted into the canal part of the human body;

a plurality of probes symmetrically arranged around
10 the probe base, which are located near the inner side of the canal part of the biological tissue when the device is inserted into the canal part and are driven to press onto and return from the biological tissue;

a stress detection sensor provided on each of said
15 probes, for detecting the stress applied to the biological tissue based on the repulsion from the biological tissue when said probes are driven to press onto and return from the biological tissue; and

a deviation detection sensor for detecting the change
20 of said stress detection sensor with respect to the probe base,

wherein the elasticity of the biological tissue is measured based on the stress and deviation magnitude characteristics when the probes are driven to press onto
25 and return from the biological tissue.

According to another aspect of the invention, there is also provided an elasticity measuring device for being inserted into a canal part of a human body and for measuring elasticity of the inner side of the canal part of the biological tissue, the device comprising:

a probe base for being inserted into the canal part of the human body;

a plurality of probes symmetrically arranged around the probe base, which are located near the inner side of the canal part of the biological tissue when the device is inserted into the canal part and are driven to press onto and return from the biological tissue;

a hardness sensor provided on each of the probes, for outputting a signal indicative of hardness of the biological tissue;

a hardness detection means for detecting the hardness of the biological tissue based on the signal from the hardness sensor; and

a deviation detection sensor for detecting the deviation magnitude of the hardness sensor with respect to the probe base,

wherein the elasticity of the biological tissue is measured based on the hardness characteristics when the probes are driven to press onto and return from the biological tissue.

C L A I M S

1. An elasticity measuring device for being inserted
into a canal part of a human body and for measuring elas-
ticity of the inner side of the canal part of the human
5 body, said device comprising:

a probe base for being inserted into the canal part
of the human body;

at least one probe arranged around said probe base,
which is located near the inner side of the canal part of
10 the human body when the device is inserted into the canal
part and is driven to press onto and return from the bio-
logical tissue;

a stress detection sensor provided on said probe, for
detecting the stress applied to the biological tissue
15 based on the repulsion from the biological tissue when
said probe is driven to press onto and return from the
biological tissue; and

a deviation detection sensor for detecting the change
of said stress detection sensor with respect to said probe
20 base,

wherein the elasticity of the biological tissue is
measured based on the stress and deviation magnitude char-
acteristics when the probe is driven to press onto and
return from the biological tissue.

2. An elasticity measuring device for biological tissue according to claim 1, in which a plurality of said probes are symmetrically arranged around said probe base through corresponding spring members.

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3. An elasticity measuring device for biological tissue according to claim 2, in which said deviation detection sensor comprises a pair of light emitting element and light receiving element, said light emitting element being
10 secured on a surface of said probe base and said light receiving element being secured on said spring member so as to oppose to each other.

4. An elasticity measuring device for biological tissue
15 according to claim 1, in which said stress detection sensor comprises a distortion guage.

5. An elasticity measuring device for being inserted into a canal part of a human body and for measuring elasticity of the inner side of the canal part of the human
20 body, said device comprising:

a probe base for being inserted into the canal part of the human body;

at least one probe arranged around said probe base,
25 which is located near the inner side of the canal part of

the biological tissue when the device is inserted into the canal part and is driven to press onto and return from the biological tissue;

5 a hardness sensor provided on said probe, for outputting a signal indicative of hardness of the biological tissue;

a hardness detection means for detecting the hardness of the biological tissue based on the signal from said hardness sensor; and

10 a deviation detection sensor for detecting the deviation magnitude of said hardness sensor with respect to said probe base,

wherein the elasticity of the biological tissue is measured based on the hardness characteristics when the probe is driven to press onto and return from the biological tissue.

6. An elasticity measuring device for biological tissue according to claim 5, wherein said hardness sensor comprises:

20 a vibration element; and

a vibration detector, and wherein said hardness detection means comprises:

an input terminal connected to said vibration detector;

AMENDED CLAIMS

[received by the International Bureau on 27 November 2002 (27.11.02);
original claims 5 amended; remaining claim unchanged (1 pages)]

the biological tissue when the device is inserted into the canal part and is driven to press onto and return from the biological tissue;

5 a hardness sensor provided on said probe, for outputting a signal indicative of hardness of the biological tissue;

a hardness detection means for detecting the hardness of the biological tissue based on the signal from said hardness sensor; and

10 a deviation detection sensor for detecting the deviation magnitude of said hardness sensor with respect to said probe base,

wherein the elasticity of the biological tissue is measured based on the hardness and deviation characteristics when the probe is driven to press onto and return from the biological tissue.

6. An elasticity measuring device for biological tissue according to claim 5, wherein said hardness sensor comprises:

a vibration element; and

a vibration detector, and wherein said hardness detection means comprises:

an input terminal connected to said vibration detector;

STATEMENT UNDER ARTICLE 19(1)

In claim 5, on line 14, after "hardness", we amend to insert --and deviation--.

The deviation detection sensor of the instant invention is not disclosed or suggested in the cited documents. For making this point clear, claim 5 is amended as above.

Other claims are retained unchanged.